



BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CAL

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Order Instituting Rulemaking Regarding Policies,
Procedures and Rules for Development of
Distribution Resources Plans Pursuant to Public
Utilities Code Section 769.

Rulemaking 14-08-013
(Filed August 14, 2014)

**REPLY COMMENTS OF BLOOM ENERGY, INC. TO THE RESPONSES TO
QUESTIONS POSED IN THE COMMISSION'S ORDER INSTITUTING
RULEMAKING REGARDING POLICIES, PROCEDURES AND RULES FOR
DEVELOPMENT OF DISTRIBUTION RESOURCES PLANS PURSUANT TO PUBLIC
UTILITIES CODE SECTION 769 (R.14-08-013)**

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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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Pursuant to *Order Instituting Rulemaking regarding policies, procedures and rules for development of Distribution Resources Plans pursuant to Public Utilities Code § 769*, Bloom Energy, Inc. respectfully submits these Reply Comments in response to the initial responses to questions posed in the Order Instituting Rulemaking (“OIR”) and the Distribution Resources Plans Workshop on September 17, 2014.

I. Introduction

Bloom appreciates the opportunity to participate in this proceeding and provide these response comments to the initial comments to the OIR and the Distribution Resources Plans Workshop (“Workshop”) held at the California Public Utilities Commission (“Commission” or “CPUC”) on September 17, 2014.

Founded in 2001, Bloom Energy is headquartered in Sunnyvale, California where the company manufactures unique distributed fuel cell power systems which are among the most energy efficient on the planet. Bloom Energy Servers™ produce reliable electricity using an environmentally superior non-combustion process that significantly reduces carbon dioxide emissions while virtually eliminating criteria pollutants and water usage. Bloom Energy Servers can be sited in specific locations on the electric grid on either the customer side or the utility side of the meter. The result is a new option for energy infrastructure that combines increased electrical reliability and improved energy security with significantly lower environmental impact. Bloom’s fuel cells were invented in California, are manufactured in California and are

being deployed throughout California to help the state meet its energy, environmental and economic objectives.

Reliable, targeted, greenhouse gas (GHG) and air pollutant reducing technologies like Bloom's Energy Servers should play an integral role in the state's energy plans to help address increasing environmental goals, the need to integrate intermittent technologies and the need to quickly deploy reliable resources in critical areas.

II. Comments

Bloom believes that the Distribution Resources Plans (DRPs) are a vital step towards enhancing the electrical grid and increasing the interconnection of distributed generation (DG). Bloom echoes the OIR in stating that this proceeding should "evaluate existing and future electric distribution infrastructure and planning procedure." (OIR, p.2.) In order to best plan for increased integration, the utilities and the Commission should use this rulemaking as an opportunity to conduct a comprehensive census of existing distribution resources to understand the effects these facilities are having on the grid. Considering existing distributed energy resources (DER) will help establish mechanisms for integrating additional DER that is locally beneficial, technologically diverse, reliable, and in coordination with California's other energy goals such as GHG reduction.

Bloom also supports the comments raised at the Workshop that this proceeding should not isolate itself from other programs at the CPUC. Judging from statements made at the Workshop and responses filed in this rulemaking to date, Commissioner Picker, CPUC staff, academic researchers, and other stakeholders all foresee dramatic evolution in the operation of our electrical grid and of the emerging energy technologies that can improve our grid. As discussed in more detail below, the Commission should dovetail that evolution, which is being spearheaded by this proceeding, with existing programs and goals of the state.

In addition to environmental attributes, this proceeding should also focus on two necessary features of a smarter power grid – resiliency and reliability. DER can provide these qualities, and the Commission should determine a *quantitative* methodology to assess these benefits. As the OIR stated, the scope of this proceeding includes "assessing whether DERs provide distribution reliability benefits." (OIR, p.5.) Pacific Gas & Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E) all emphasized in their initial

responses to the OIR that resiliency of a grid with increased DER integration is a concern, and Bloom believes that this proceeding must focus on all DER technologies, including those that are non-intermittent, to fully understand and quantify the effects of DER on grid reliability and resiliency.

Finally, the calculation methodology for optimal locations of DERs should be transparent about assumptions, list all costs and benefits borne by each party, be designed to assess portfolios rather than individual investments, consider costs and benefits in comparison to regular expenses, and should contain a mechanism for tracking locational benefits after installation to collect further data.

a. All Clean Distributed Energy Resources should be included in DRPs so that the utilities and the Commission can take into account the different attributes of existing and new distribution resources that reduce GHG emissions.

This rulemaking and the DRPs should consider all clean distributed resources that provide GHG reductions that also provide grid resiliency and reliability to the grid. As Commissioner Picker mentioned during the Workshop, we are working towards system-optimization, and want to create “net neutrality” for the distribution grid. As such, to be complete and effective, the DRPs should take into consideration all of the technologies that are endorsed by State policies and currently participating in other programs to advance distributed generation. For instance, the State and the Commission have implemented several customer side programs such as the Combined Heat & Power (CHP) feed-in tariff, the Qualifying Facilities and CHP Program Settlement Agreement, the California Solar Initiative, renewable feed-in tariff programs, Energy Storage procurement under AB 2514 and the recent extension to the Self Generation Incentive Program (SGIP). All of the projects and technologies implemented by these programs and other similar programs, should be included in this Proceeding and the IOU’s DRPs. The technologies being promoted through these programs should be contained in the DRPs because they will continue to be integrated into our evolving grid and must be planned for. Instead of furthering a silo-ed approach, this Proceeding should take the opportunity to be holistic and technology-agnostic in order to be accurate and to reflect the many policies that relate to distributed generation. As numerous interest groups emphasized at the Workshop, this proceeding should not exist in a vacuum.

Fuel cells fit squarely within the CPUC's definition of Preferred Resources announced in the Loading Order of the Energy Action Plan (EAP II) and implemented by the Long Term Procurement Plans (LTPP), and therefore should be included in this proceeding as well. The EAP II includes, "distributed generation, such as combined heat and power applications." (EAP II). Additionally, LTPP Track 1 mandated "preferred resources consistent with the Loading Order." (D.13-02-015, p.131.) Similarly, LTPP Track 4 required the procurement of preferred resources pursuant to the Loading Order. (D.14-03-004, p.142.) Bloom's fuel cell technology is clean, reducing GHG emissions with negligible criteria air pollutants and negligible water use, all while providing reliable, non-intermittent power. All-electric fuel cells' qualities and benefits should be examined along with all the other DER technologies in this proceeding and in the eventual IOU DRPs. With water becoming less available and emissions standards becoming stricter, any DER technology that uses minimal water and reduces criteria air pollutants and GHG emissions should be included in the DRPs. Such an approach would make this rulemaking and the DRPs extremely valuable and informative during this time of grid evolution.

b. The DRPs should consider the continued need for and effects of DER on grid reliability and resiliency.

California is facing increases in electricity consumption and population growth, as well as the prospect of a prolonged drought. As renewable penetration continues in this setting, grid resiliency and reliability will become progressively important. The *More Than Smart* study states, "The challenge for distribution planning, unlike transmission, is that there is no current analytical framework to address the inherent trade-off between economic optimization and operational robustness [resilience & reliability]. Failure to address this significant gap is a recipe for potentially disastrous results before 2030." (*More Than Smart: A Framework to make the Distribution Grid more Open, Efficient and Resilient*, Resnick Institute, p. 9.) Resources that can provide resilient power and enhance the grid's stability, especially in times of disaster or disruption, should be given credit for these qualities. These benefits should be explored in this proceeding and the DRPs so that a quantitative mechanism can be established that will calculate the added value of these resilient, distributed resources to the grid. Because the concerns of grid reliability and resiliency posed by DER integration are broad, this proceeding and the DRPs should make sure to examine all forms of DER that will be integrated into the grid.

c. Optimal Location.

This proceeding and the DRPs must also establish a methodology for calculating “optimal location” as required by AB 327. We agree with comments made at the Workshop by Sky Stanfield of Interstate Renewable Energy Council that an important question is whether utilities will start considering DER as a replacement to wires. Developing a mechanism to calculate locational benefits and impacts of DER should be a major priority for this proceeding so that the utilities can begin considering those benefits in their procurement processes.

The quantitative assessment should include the value for minimizing community impact. Large infrastructure investments can have significant negative impact on both ratepayers and the community as evidenced most recently by the Chino Hills transmission project. Moreover, the DRPs should establish a quantitative value for DERs that can be deployed quickly while also providing reliability and resiliency. Time-to-power is becoming an increasingly important quality to meet reliability needs as more intermittent technologies come online to meet the State’s RPS goals.

California is not alone in determining the values of DER deployment. As noted on the Commission’s DRP website, New York’s PSC is considering similar issues in their “NY REV” proceeding. Of particular interest is the PSC’s thoughtful consideration of the costs and benefits from different stakeholder perspectives as summarized in a benefits chart (See attached excerpt from the NY REV Staff Proposal). The proposed lists of considerations in the chart are, if not exhaustive, at a minimum a good place to start. These factors should be included in California’s DRP proceeding discussion.

III. CONCLUSION

Overall, R.14-08-013 is an excellent opportunity for the Commission and stakeholders to explore the development of a modernized distribution grid in California. As the Resnick Institute study says, “Fundamentally, these distribution designs need to consider how to evolve a closed single purpose system to a more open, flexible, operationally visible and resilient platform that can accommodate anticipated DER integration and future innovations.” (*More Than Smart: A Framework to make the Distribution Grid more Open, Efficient and Resilient*, Resnick Institute, p. 13.) We are presented with an opportunity to establish a grid of the future, and we should not leave out any resources that could be integral in that future. Fuel cells are clean,

reduce GHG emissions and criteria air pollutants, and lessen water use, are exempt from air permitting, while also providing increased reliability to the grid. We believe that this proceeding and the DRPs should adopt a holistic approach to reimagining the distribution grid, and should remain technology-neutral. Bloom looks forward to continued participation in this rulemaking.

Dated October 6, 2014

Respectfully submitted,

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Attachment

State of New York Department of Public Service CASE 14-M-0101 - Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision. *Developing the REV Market in New York: DPS Staff Straw Proposal on Track One Issues, Page 44.*

	PERSPECTIVE		
	RIM (rates)	Utility Cost (bill)	Societal
BENEFITS			
<u>Bulk System</u>			
Avoided Generation Capacity (ICAP) Costs, Including Installed Reserves and Losses	✓	✓	✓
Avoided Energy (LBMP) Costs, including Losses	✓	✓	✓
Avoided Ancillary Services (e.g. operating reserves, regulation, etc.)	✓	✓	✓
Wholesale Market Price Impacts	✓	✓	-
<u>Distribution System</u>			
Avoided T&D Capacity Costs	✓	✓	✓
Avoided O&M Costs	✓	✓	✓
Avoided Distribution Losses	✓	✓	✓
<u>Reliability/Resiliency</u>			
Avoided Restoration Costs	✓	✓	✓
Avoided Outage Costs*	-	-	✓
<u>External (net)*</u>			
Avoided GHG*	-	-	✓
Avoided Criteria Air Pollutants*	-	-	✓
Water*	-	-	✓
Land*	-	-	✓
Non-Energy Benefits (e.g., health impacts, employee productivity, property values)			✓
*note: only the portion not already included above, net of any added external costs			
COSTS			
Program administrative costs (including M&V)	✓	✓	✓
Added Ancillary Service Costs	✓	✓	✓
Incremental T/D/DSP Costs (Including Incremental Metering and Communication)	✓	✓	✓
Participant DER Cost	-	-	✓
"Lost" Utility Revenues	✓	-	-
Incentives	✓	✓	-
Non-Energy Costs (e.g., indoor emissions, noise disturbance)			✓
RISKS (net)			
Compare Variability of Benefits to Variability of Costs	✓	✓	✓